

AMENDMENTS

Listing of Claims

The following listing of claims replaces all previous listing or versions thereof:

1. (Previously presented) A DNA segment comprising a protein coding region encoding an Osterix polypeptide, wherein said polypeptide comprises a transactivation domain, a zinc finger domain and a proline rich domain.
2. (Canceled)
3. (Original) The DNA segment of claim 1, wherein said transactivation domain comprises an amino acid sequence from between position 27 and position 270 of SEQ ID NO:2.
4. (Canceled)
5. (Canceled)
6. (Original) The DNA segment of claim 1, wherein said zinc finger domain comprises an amino acid sequence from between position 290 and position 374 of SEQ ID NO:2.
7. (Canceled)
8. (Canceled)
9. (Original) The DNA segment of claim 1, wherein said proline rich domain comprises an amino acid sequence from between position 27 and position 192 of SEQ ID NO:2.
10. (Canceled)

11. (Original) The DNA segment of claim 1, wherein said Osterix polypeptide is further defined as having the sequence of SEQ ID NO:2.
12. (Presently amended) The DNA segment of claim [[5]]1, wherein said zinc finger domain is 77.6% homologous with transcription factor Sp-1.
13. (Presently amended) The DNA segment of claim [[5]]1, wherein said zinc finger domain is 69.4% homologous with transcription factor Sp-2.
14. (Presently amended) The DNA segment of claim [[5]]1, wherein said zinc finger domain is 77.8% homologous with transcription factor Sp-3.
15. (Presently amended) The DNA segment of claim [[5]]1, wherein said zinc finger domain is 77.8% homologous with transcription factor Sp-4.
16. (Canceled)
17. (Original) The DNA segment of claim 1, wherein said DNA segment comprises a contiguous nucleic acid sequence from SEQ ID NO:1.
18. (Original) The DNA segment of claim 1, encoding an Osterix protein of 428 amino acids in length.
19. (Original) The DNA segment of claim 1, wherein the Osterix coding region is positioned under the control of a promoter.
20. (Original) The DNA segment of claim 19, wherein said promoter is a recombinant promoter.
21. (Original) The DNA segment of claim 19, further defined as a recombinant vector.

22. (Original) A recombinant host cell comprising a DNA segment of claim 1.
23. (Original) The recombinant host cell of claim 22, further defined as a prokaryotic host cell.
24. (Original) The recombinant host cell of claim 23, wherein the prokaryotic host cell is a bacterial host cell.
25. (Original) The recombinant host cell of claim 24, wherein the bacterial host cell is *E. coli*.
26. (Original) The recombinant host cell of claim 22, further defined as a eukaryotic host cell.
27. (Original) The recombinant host cell of claim 26, further defined as an osteoblast.
28. (Original) The recombinant host cell of claim 27, wherein said osteoblast is a BMP2-treated C2C12 cell.
29. (Original) The recombinant host cell of claim 26, further defined as a mesenchymal precursor cell.
30. (Original) The recombinant host cell of claim 22, wherein the DNA segment is introduced into the cell by a recombinant vector comprising a DNA segment encoding an Osterix polypeptide positioned under the control of a promoter.
31. (Canceled)
32. (Canceled) A nucleic acid segment characterized as:
 - a) a nucleic acid segment comprising a sequence region that consists of 14 nucleotides that have the same sequence as, or are complementary to, at least 14 contiguous nucleotides of SEQ ID NO:1; or

- b) a nucleic acid segment of from 14 to 10,000 nucleotides in length that hybridizes to the nucleic acid segment of SEQ ID NO:1, or the complement thereof, under standard hybridization conditions.
33. (Canceled) The nucleic acid segment of claim 32, wherein the segment comprises a sequence region of at least 14 contiguous nucleotides from SEQ ID NO:1 or the complement thereof.
34. (Canceled) The nucleic acid segment of claim 33, wherein the segment comprises a sequence region of at least 17 contiguous nucleotides from SEQ ID NO:1 or the complement thereof.
35. (Canceled) The nucleic acid segment of claim 34, wherein the segment comprises a sequence region of at least 20 contiguous nucleotides from SEQ ID NO:1 or the complement thereof.
36. (Canceled) The nucleic acid segment of claim 35, wherein the segment comprises a sequence region of at least 25 contiguous nucleotides from SEQ ID NO:1 or the complement thereof.
37. (Canceled) The nucleic acid segment of claim 36, wherein the segment comprises a sequence region of at least 30 contiguous nucleotides from SEQ ID NO:1 or the complement thereof.
38. (Canceled) The nucleic acid segment of claim 37, wherein the segment comprises a sequence region of at least 35 contiguous nucleotides from SEQ ID NO:1 or the complement thereof.
39. (Canceled) The nucleic acid segment of claim 38, wherein the segment comprises a sequence region of at least 40 contiguous nucleotides from SEQ ID NO:1 or the complement thereof.

40. (Canceled) The nucleic acid segment of claim 32, wherein the segment hybridizes to the nucleic acid segment of SEQ ID NO:1 or the complement thereof under stringent hybridization conditions.

41. (Canceled) The nucleic acid segment of claim 40, wherein the segment is at least 17 nucleotides in length.

42. (Canceled) The nucleic acid segment of claim 41, wherein the segment is at least 20 nucleotides in length.

43. (Canceled) The nucleic acid segment of claim 42, wherein the segment is at least 25 nucleotides in length.

44. (Canceled) The nucleic acid segment of claim 43, wherein the segment is at least 30 nucleotides in length.

45. (Canceled) The nucleic acid segment of claim 44, wherein the segment is at least 35 nucleotides in length.

46. (Canceled) The nucleic acid segment of claim 45, wherein the segment is at least 40 nucleotides in length.

47. (Canceled) The nucleic acid segment of claim 32, wherein the segment is up to about 3 kilobasepairs in length.

48. (Original/Allowed) An expression cassette comprising a polynucleotide encoding a polypeptide having the sequence of SEQ ID NO:2, wherein said polynucleotide is under the control of a promoter operable in eukaryotic cells.

49. (Presently amended) The expression cassette of claim 48, wherein said promoter is heterologous to the ~~encoding sequence~~ polynucleotide encoding a polypeptide having the sequence of SEQ ID NO:2.

50. (Original/Allowed) The expression cassette of claim 48, wherein said promoter is a tissue specific promoter.

51. (Original/Allowed) The expression cassette of claim 48, wherein said promoter is an inducible promoter.

52. (Original/Allowed) The expression cassette of claim 48, wherein said expression cassette is contained in a viral vector.

53. (Original/Allowed) The expression cassette of claim 52, wherein said viral vector is selected from the group consisting of a retroviral vector, an adenoviral vector, and adeno-associated viral vector, a vaccinia viral vector, and a herpesviral vector.

54. (Original/Allowed) The expression cassette of claim 48, wherein said expression cassette further comprises a polyadenylation signal.

55. (Original/Allowed) A cell comprising an expression cassette comprising a polynucleotide encoding a polypeptide having the sequence of SEQ ID NO:2, wherein said polynucleotide is under the control of a promoter operable in eukaryotic cells, said promoter being heterologous to said polynucleotide.

56-77. (Canceled)